

KURRATOV, I. N.

24855. KURRATOV, I. N. Proiskhozhdeniye I Sostav Oranicheskogo Beslichectva Torfa.
Trudy Yubileynoy Sessii, Posvyashch, Stuletiyu So Dnya Rozhdeniya Dokuchayeva,
M. L. 1949, S. 660-68

SO: Letopis' No. 33, 1949

KURBATOV, I.M., professor.

~~Determining the energy and coefficient of respiration. Mat. v shkole~~
no. 5:78-79 8-0 '56.
(MLRA 9:10)

1. Belorusskaya sel'skokhozyaistvennaya akademiya.
(Plants--Respiration)

USSR / Soil Science. Fertilizers. Organic Fertilizers. J

Abs Jour: Ref Zhur-Biol., No 2, 1959, 6093.

Author : Kurbatov, I. M.

Inst : Belorussiia Agric. Academy.

Title : Achievements of Soviet Science in the Study of
the Nature of Peat.

Orig Pub: Tr. Belorussk. s.-kh. akad., 1957, 26, No 2,
53-60.

Abstract: The author does not consider the mixing of manure and peat to be expedient, since, in the experiments conducted, peat-manure composts, when used as fertilizers, did not show advantages in comparison with the use of bottom peat partly enriched with azotobacter. When peat is used as a fertilizer, one has to take into account its slow

Card 1/2

USSR / Soil Science. Fertilizers. Organic Fertilizers. J

Abstr Jour: Ref Zhur-Biol., No 2, 1959, 6093.

Abstract: mineralization, and hence its fertilizing activity is spread over a period of many years. --
M. L. Yaroshenko.

Card 2/2

32

DUDKO, Z.G.; KURBATOV, I.M.

Photosynthesis of corn in White Russia. Sbor.nauch.rab.Bel.otd.VBO
no.1:25-31 '59. (MIRA 14:4)
(White Russia—Corn (Maize)) (Photosynthesis)

country	: USSR
category	:
ref. jour.	: RZhKhCh., No. 3 1959, No. 10124
author	: Kurbatov, I. M.
inst.	: The Belorussian Agricultural Academy
title	: The Problem of the <i>Bacillus Leidophilus</i> and the Participation of Workers of the Chair of Microbiology
orig. pub.	: of the Belorussian Agricultural Academy in* 'Tr. Belorussk. s.-kh. akad., 1957, 26, No 2, 73-78
abstract	: * Its Development No abstract.

Card: 1/1

KURBATOV, I.M.

Effect of peat and its humic acids on roots. Sbor. bot. rab. Bel.
ctd. VBO no.2:58-67 '60. (MIRA 15:1)
(Peat) (Humic acid--Physiological effect)
(Roots (Botany))

KURBATOV, I.M.; DOVHAR, V.S.

Utilization of solar energy by corn in controlled plantings. Dokl.
AN BSSR 4 no.10:435-437 '60. (MIRA 13:9)

1. Belorusskaya sel'skokhozyaystvennaya akademiya, g.Gorki. Predstav-
leno akademikom AN BSSR T.N.Godnevym.
(Corn (Maize)) (Photosynthesis)

KURBATOV, I.

What we learn from the experience of over-all mechanized crews.
Tekh. v sel'khoz. 20 no.6:23-25 Je '60. (MIRA 13:10)
(Corn (Maize)) (Farm mechanization)

KURBATOV, I.M., otv. za vypusk

[Reports of the Scientific Conference on Work Results for
1960 held on April 4-7, 1961] Tezisy dokladov nauchnoi
konferentsii po itogam raboty za 1960 god 4-7 aprelia 1961 g.
Gorki, Izd-vo Belorusskoi sel'khoz. akad. BSSR. No.1. Agricul-
tural Section] Agronomicheskaiia sektsiia. 1961. 37 p.

(MIRA 15:2)

1. Gorki, (Mogilevskaya oblast') Belaruskaya akademiya sel'skaye
hospodarki.

(Agricultural research)

KURBATOV, I.M.; DUDKO, Z.G.

Productivity of the leaf apparatus of corn in the White Russian
S.S.R. Sbor. nauch. rab. Bel. otd. VBO no.3:55-63 '61.
(MIRA 14:12)
(White Russia-Corn (Maize))
(Photosynthesis)

KURPATOV, I.M.; LEUSHEVA, M.I.

Effect of peat application on the biological activity of
turf-Podzolic soils. Bot.; issl. Bel. otd. VNI no.5:195-198 '63.
(MIRA 17:5)

ACC NR: AP6001800 SOURCE CODE: UR/0089/65/019/006/0537/0540

AUTHOR: Kurbatov, I. M.; Leonchuk, M. P.; Trofimov, A. S.

46

ORG: none

TITLE: The optimum control of thermal processes in nuclear reactors

SOURCE: Atomnaya energiya, v. 19, no. 6, 1965, 537-540

TOPIC TAGS: nuclear reactor operation, nuclear reactor characteristic, nuclear reactor control, optimal control

ABSTRACT: The authors studied earlier (Zh. vychisl. matematiki i matem. fiziki, 5, 558, 1965) the optimum response control of transient thermal processes in nuclear reactors. The control was carried out by changing the flow of the coolant $G(\tau)$. The present note is a continuation of the investigation of the dynamic properties of the thermal model of nuclear reactors serving as a component of the control system. The influence of heat exchangers, circulation pumps and other components on the transient processes in the reactor is not taken into account. For a given linear law of reactor power change $q(\tau)$ a determination is made of $G(\tau)$ to assure, during the transient process, the minimum deviation from the linear temperature variation at the output. The same problem is also considered for arbitrary $q(\tau)$. The results are given as curves of optimum reactor power increase and decrease for different reactor parameters. Two separate families of curves correspond to the minimum transient

Card 1/2

2
UDC:621.039.56

ACC NR: AP6001800

time and minimum output temperature deviation criteria. Orig. art. has: 18 formulas and 2 figures.

SUB CODE: 20 / SUBM. DATE: 13Feb65 / ORIG REF: 004

PC

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2/2

dimension q , and inlet temperature θ . The system is at

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000927620015-9

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000927620015-9"

KURBATOV, I. P.

Slesarnoe delo. Moskva, Voen. izd-vo, 1950. 238 s. illus.

Assembly and fitting work.

DLC: TJ1160.187

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

KURBATOV, I.S., inzh.

Cascade-type asynchronous electromagnetic clutch. Izv. vys. ucheb. zav.; energ. 6 no.3:91-95 Mr '63. (MIRA 16:5)

1. Rizhskiy institut inzhenerov Grazhdanskogo vozduzhnogo flota. Predstavlena seminarem kafedry elektrooborudovaniya samoletov. (Clutches (Machinery))

L 8855-66 EWT(d)/EWT(n)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(b)/EWP(l)/EWA(h)/EWA(c) JD/HW
ACC NR: AF5026482 SOURCE CODE: UR/0286/63/000/019/0009/0009

INVENTOR: Zhukovich-Stosha, Ye. A.; Solov'yev, O. P.; Ritman, R. I.; Shaver, A. B.;
Azimov, S. K.; Brovman, M. Ya.; Iskel', L. G.; Kurbatov, I. V.

ORG: none

TITLE: Planetary rolling mill. Class 7, No. 175025

SOURCE: Byullaten' izobreteniij i tovarnykh znakov, no. 19, 1965, 9

TOPIC TAGS: tube, tube rolling, rolling mill, metal rolling

ABSTRACT: This Author Certificate introduces a planetary rolling mill (based on Author Certificate No. 124398). For rolling tubes with variable cross section, the mill is equipped with a gear which meshes with the gears of the planetary rolls. The gear is turned by an auxiliary drive and a device which moves the mandrel during rolling, both of which are controlled by a copying attachment. Orig. art. has: 1 figure. [AZ]

SUB CODE: 18/ SUBM DATE: 29Jan64/ ATD PRESS: 4152

Card 1/1 UDC: 621.771.064

KURBATOV, K. D.

"An experiment in the utilization of reserves in the animal industry"

Veterinariya, vol. 39, no. 4, April 1962 p. 24

KUPELEV, K. S.

Making use of production potentialities in animal husbandry.
Veterinaria 39 no.4:24-26 Apr '62.

(MIA 17:10)

KURBATOV, L.

Making sealing rings. Tekh. sov. kolkh., RTS, sovkhoz. 20 no.3:3-4
D '59. (MIRA 13:3)
(Sealing (Technology))

KURKATOV, L.N.
C A

3

Some photochemical properties of iodine adsorbed on thallium iodide. L. N. Kurkatorv. *Voprosy Zashchity Lenograd. Gidroatm. Sist. Ser. Pis. Nauk* 1939, No. 5, (No. 38), 41-3; *Khim. Referat. Zhur.* 1940, No. 3, 12; cf. *C. A.* 35, 3909. — The spectrum of I adsorbed on TlI was studied. Absorption in the short wave part of the spectrum predominates at the beginning of adsorption. Absorption in the red region increases with the increased amt. of adsorption. The adsorption of gaseous I in occurs under the influence of light. This process depends on the wave length of the light and on the presence of foreign gases. A max. effect is obtained from wave lengths in the region of the 2nd absorption max. The probable mechanism of the phenomena is discussed.
W. R. Henn

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

KURDAgov, L.N.

5 Photochemical properties of Iodine sorbed by thallium iodide. Ya N. Kurdagov, *J. Phys. Chem. U.S.S.R.* 14, 1049-53 (1940); cf. *C. A.* 36, 2389. -In I vapor satd. at room temp. TlI absorbs 2 I atoms per mol.; when I vapor is frozen out at 0° the compn. of the adsorbent corresponds with 5TlI TlI. This compd. is dark gray, when it is illuminated it is bleached, especially in green light, and loses some I. A weakly visible image produced by illumination is intensified if more I vapor is introduced. When I vapor is permanently present the bright image produced by light becomes almost black on longer exposure. The light absorption by these images is measured. The development of images by I vapor is presumably due to a difference between the condensation centers on illuminated and untreated adsorbent. B. C. P. A.

A-1

KURDAEV, L. N.
PC

Adsorption of iodine vapour by silica aerogel. L. N. Kur.
Izv. Akad. Nauk. SSSR, 1960, 16, 1111-1117. The
amount adsorbed of the v.p. of I up to 0.1 mm. Hg. From
the temp. coeff. between 10° and 40° the heat of adsorption
is calc. to be 10,000 g.-cal. per mol. At room temp. 1 g. of
aerogel adsorbs 0.061 g. of I. The absorption spectrum
of adsorbed I has a max. at 600 m μ . when the adsorption
is small, and at 615 m μ . when it is large. The shift of the
max. from 600 m μ . (for I vapour) to 615 m μ . is due to polariza-
tion of adsorbed I molts, and the shift to 618 m μ . is a purely
optical effect due to using not strictly monochromatic light.
J. J. B.

Physics Inst., Leningrad State U.

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CA

Dielectric properties of adsorbed vapors. I. N. Kurbas
Jov. Dubicky, Akad. Nauk N.N.R. 63, 457 (1910).
The dielec. consts. of adsorbates, as a function of the vol. of the vapor adsorbed on 1 g. of silica aerogel, were determined by resonance-method measurements of the capacity C of a cylindrical condenser filled with the aerogel, with simultaneous weighings on an adsorption balance placed in the same vacuum and thermostated as the condenser. Its proper capacity was calibrated with C_{600} after removal of the aerogel with alkali. Logit. plots of ΔC against x , for Me_2CO vapor, at 30.0, 51.5, and 72°, coincide and consist of 2 linear portions of different slopes. The breaking point corresponds to the vol. x_0 of a unimol. layer. In the case of H_2O vapor, transition to capillary condensation is accompanied by a curvature. If the position of the breaking point indicates the beginning of formation of the 2nd layer, it may constitute a method for the detn. of the sp. surface area; for the silica aerogel, it gives 800 cu. cm./g. The polarization P of the adsorbates, calcd. by the Cladus-Misotti equation (thermed. applicable on the basis of the closeness of P of the pure aerogel, 121 cu. cm., and that of fused quartz, 130 cu. cm.), is for Me_2CO , 1st layer, 138.5, 2nd layer, 101.5 cu. cm.; for H_2O , resp., 83 and 64. Thus, the P of the adsorbates are close to those of the gases. The temp. independence of the dielec. consts. of the adsorbates may be due to a compensation of the hindrance of orientation at higher temps. by increased freedom of rotation. N. Thom

Phys Inst, Semipalatinsk State J.

AT&T-BELL LABORATORY LITERATURE CLASSIFICATION

CA KURBATOV, L.N.

Infrared absorption spectra of vapors adsorbed on
silica aerogels. L. N. Kurbatov and G. G. Neiman
Doklady Akad. Nauk S.S.R. **68**, 311 (1950); *J. C. S.* **43**,
2611 (1951).—Silica aerogel of specific surface area 1000 sq. cm./g.
in the form of plates $10 \times 15 \times 2$ mm., outgassed in vacuo
3-4 hrs. at 400° , shows an intense narrow absorption band
at 1.37μ . On gradual adsorption of CHCl_3 vapor, its
intensity decreases, and a new band, 0.02 μ farther in the
long-wave direction, appears. The intensity of this band
first increases, then decreases. Another band, at 1.60μ ,
increases in intensity regularly as the vapor pressure
increases. With Me_2CO and PhOH , the 1.37μ band shows
a sharp drop of intensity even at the lowest vapor pres-
sures; bands of the adsorbed substances appear only at
very much higher pressures. The 1.37μ also disappears,
without adsorption, after 12 hrs. heating to room at 900° .
This band is evidently due to isolated external OH groups
which are the first to be affected by adsorption. The be-
havior of the intensity of the 1.30μ band of adsorbed CHCl_3
is taken to correspond to a transition from adsorbed mole-
cules to liquid formed by capillary condensation. N. T.

Phys Inst., Leningrad State U.

KURBATOV, L.N.
CA

The dielectric properties of adsorbed vapors. L. N. Kurbatov (Leningrad State Univ., Leningrad). *Zhur. Fiz. Khim.* 34, 809-912 (1960).—A formula is derived for the orientation polarization of adsorbate dipolar molts. of little vibration and free rotation of the dipole within a limited space. The adsorption study was made by measurement of the dielec. const. of the adsorbate. The transition from single-layer to double-layer adsorption is accompanied by a change in the dielec. properties. The degrees of polarization of Me_2CO and H_2O were calcd, and these values interpreted in terms of the derived formula. P. W. H.

KIRSHOV, L.N.

CA

Onoluminescence and cathodic luminescence of silica gel. L. N. Kirshov (Leningrad State Univ, Leningrad). Zhur. Fiz. Khim. 24, 913-23 (1930). In the oxyluminescence arising during the catalytic oxidation of MeOH, EtOH, AcOH, and Et₂O over silica gel the luminescence carrier is believed to be excited mols. of HCHO. The catalyst does not participate in the luminescence. Cathodic luminescence of silica gel was observed in the presence of adsorbed H₂O. The mechanism of the luminescence is explained by analogy with silicones. Paul W. Howerton

KURBATOV, L. N.

USER/ Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 15/27

Authors : Kurbatov, L.N.

Title : Dielectric constant of vapors adsorbed by silica aerogel

Periodical : Zhur. fiz. khim. 28/2, 287-298, Feb 1954

Abstract : Measurements of the adsorbed amount and dielectric constants of an adsorbate have shown that a noticeable change in the dielectric properties takes place during the change over from the monomolecular into polymolecular adsorption. It was established that monomolecular adsorption depends not upon the surface area of the adsorbent but upon the number of active centers. The heat of adsorption decreases with the increase in the adsorbed amount and finally reaches a value close to the heat of condensation. The measurement of the dielectric constant of an adsorbate is recommended as a method of investigating the association of molecules in an adsorbed state as well as phase conversions. Twelve references: 5-USSR; 4-USA; 1-Canadian; 1-French and 1-English (1946-1951). Table; diagrams; drawing.

Institution: The A.A. Zhdanov State University, Leningrad

Submitted : April 27, 1953

KURBATOV, Leonid Nikolayevich

KURBATOV, Leonid Nikolayevich (Military-Naval Med Acad), Academic degree of Doctor of Physico-Mathematical Sciences, based on his defense, 28 March 1955, in the Council of the Leningrad Order of Lenin State University imeni Zhdanov, of his dissertation entitled: "Research on the absorption of the fumes and gases of aeroglaems of silica by means of physical methods."

For the Academic Degree of Doctor of Sciences.

Byulleten' Ministerstva Vysshego Obrazovaniya SSSR, List No.7, 31 March 1956
Decision of Higher Certification Commission Concerning Academic Degrees and Titles.

JPRS 512

P. E. Val'nev

AF701597

TREASURE ISLAND BOOK REVIEW

AID 800 - S

~~A. N.~~ KURBATOV (Naval Medical Academy, Leningrad) DISKUSSIYA (Discussion). In Problemy kinetiki i kataliza (Problems of Kinetics and Catalysis), vol. 8. Izdatel'stvo Akademii Nauk SSSR, 1955. Section I: Effect of illumination on the adsorbability of solids. p. 70-71.

Discussion of work done by P. E. Val'nev and covered in A. N. Terenin's paper. The coexistence of photosorption and photodesorption under the action of various wave lengths is discussed. The tendency of thallium iodide to form polyiodides is discussed. The luminescence obtained by catalytic oxidation of some organic vapors was designated by A. N. Terenin as "oxyluminescence". When a mixture of alcohol vapors with air is passed through a tube with silica aerogel at 400°C. No connection between luminescence and catalytic activity has been determined.

1/1

KURBATOV, I.N.

VOL'KENSHTEYN, F.F.; KURBATOV, I.N.; LYASHENKO, V.I.; KISELEV, A.V.
VOYEVODSKIY, V.V.; ROGINSKIY, S.Z.; TERENIN, A.N.

Discussion. Probl.kin.i kat. 8:68-76 '55. (MLRA 9:5)

1. Institut fizicheskoy khimii AN SSSR (for Vol'kenshteyn, Kiselev, Roginskiy);
2. Vojenno-morskaya meditsinskaya akademiya Leningrad (for Kurbatov);
3. Institut fiziki AN SSSR (for Lyashenko);
4. Institut khimicheskoy fiziki AN SSSR (for Voyevodskiy);
5. Leningradskiy gosudarstvennyy universitet (for Terenin).
(Photochemistry) (Desorption) (Semiconductors)

KJRBATOV, L.H.

Surface chemical compound of silica and methanol and its photo-dissociation [with English summary in insert]. Zhur, fiz, khim, 30 no.5:1062-1066 My '56. (MLRA 9:9)

1. Vayenne-merskaya meditsinskaya akademiya.
(Phetechemistry) (Silica) (Methanol)

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38751
S/194/62/000/005/057/157
D256/D308

9.4177

24.24.20

AUTHORS: Yerofeichev, V.G., and Kurnbatov, L.N.

TITLE: Recording of photoconductivity of PbS by microwave absorption

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1962, abstract 5-3-60 f ("Fotoelektr. i optich. yavleniya v poluprovodnikakh". Kiev, AN UkrSSR, 1959, 213-218)

TEXT: Results are presented of an investigation of the photoconductivity of PbS-layers carried out at frequency of 10^{10} c/s in order to determine the role of the barrier mechanism. The photoconductivity was determined by means of measuring the attenuation of microwaves in a volume resonator under illumination of the PbS layer placed in the region of the maximum field. 2 methods of observing the photoconductivity are described: 1) Wobbling the frequency of the microwave generator and observing the resonance curves on a C.R. oscilloscope with and without illumination; 2) modulating the light illuminating the layer and recording the modulation of the microwave

Card 1/2

Recording of photoconductivity ...

S/194/62/000/005/057/157
D256/D308

absorption by means of a detector-indicator arrangement. The elements of the experimental installations are described. It is shown that the barrier mechanism cannot be unique and that the most important in photoconductivity is the mechanism of basic carrier concentration changes. The dependence of the signal upon the intensity of the light was found to be linear at low intensities and sub-linear at higher intensities. 8 references. [Abstractor's note: Complete translation].

Card 2/2

20110

9,3140 (and 1137,1155)

S/181/61/003/002/038/050
B102/B201

AUTHORS: Yurofeichev, V. G. and Kurbatov, L. N.

TITLE: Temperature dependence of the conductivity of lead sulfide layers at a frequency of 10^{10} cps

PERIODICAL: Fizika tverdogo tela, v. 3, no. 2, 1961, 595-598

TEXT: The authors have reported in a previous paper on studies made regarding the conductivity of PbS layers in the microwave region at room temperature, when they found conductivity to be by one order of magnitude higher as compared with the case of direct current. At 10^{10} cps, ϵ is of the order of 500-1000, and, thus, considerably higher than would result from the optical refractive index of PbS crystals. This effect was explained on the basis of the model of the inhomogeneous semiconductor (which consists of well-conductive crystallites, on whose surface regions of a low conductivity appear with activation, so that the layer resistance is increased). A study has been made of the temperature dependence of conductivity σ . ϵ and σ were measured by the resonance method - ϵ being determined from the shift of the resonance frequency, and σ from the change of quality factor Q on introducing

Card 1/6

20140

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Temperature dependence of ...

the specimen into the resonator. The layers under investigation were sputtered in vacuo upon 10-mm large quartz- or mica sheets. The σ of the layer was calculated from the electric field strength in the resonator, and likewise determined by the method of small disturbances. The resonator was made of invar and its coefficient of thermal expansion was $0.8 \cdot 10^{-6}$; on a change of temperature by 1°C , its frequency varied by 25 kc/sec. A mercury diffusion pump served to maintain the pressure in the resonator at $1 \cdot 10^{-5}$ mm Hg; the H_{01} wave was excited in the (cylindrical) resonator. Q of the resonator was 12,500 at room temperature, and up to 18,000 at liquid-oxygen temperature. The measurements were made in the range of -183 - $+100^{\circ}\text{C}$. Fig. 1 shows the block diagram of the experimental setup. Measurements showed that the $\sigma(T)$ dependence was considerably lower than in the case of direct current. The numerical results of the measurements are compiled in Table 1 (shf) and Table 2 (d-c, $V = 70$ v). If the activation energy is assumed to obey the formula $\sigma = \sigma_0 \exp(-\Delta E/kT)$, one then obtains ΔE of the order of 0.01-0.02 ev (in case of shf measurements); d-c measurements yielded for one of the seven layers investigated in the range of 20 - -135°C : $\Delta E \sim 0.18$. The temperature dependence was found to be little

Card 2/6

20140

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B102/B201

Temperature dependence of ...

dependent upon the layer preparation. As in the previous paper, the results are explained by the model of the inhomogeneous semiconductor, using the formula by Odelevskiy-Levin: $\epsilon = \epsilon_1 [1 + 3x/(\epsilon^* - x)]$ (1), where $\epsilon^* = (\epsilon_2 - 2\epsilon_1)/(\epsilon_2 - \epsilon_1)$, ϵ is the dielectric constant of the layer, ϵ_1 that of the high-resistance intermediate layers, and ϵ_2 that of the well-conductive grains, x is the part of volume occupied by the grains. Fig. 2 shows to what considerable extent $\sigma(T)$ - here $\log \sigma$ versus $10^3/T^0K$ - (differs for d-c and shf measurements) (curve a). The temperature coefficient of conductivity is given by formula (2). The quantities are designated in the same way as in (1), the primed ϵ denoting the real parts, λ being the wavelength. For $\epsilon' = 720$, $\sigma = 1.6$, $\sigma_1 = 5 \cdot 10^{-4}$, and $\sigma = 12 \text{ ohm}^{-1} \cdot \text{cm}^{-1}$, $x = 0.94$, and $\epsilon_1' = 18$ one obtains $K = 6 \cdot 10^{-4} K_1 - 0.5 K_2$. S. P. Tibilov is thanked for his assistance and interest, and I. G. Kopilevich for having supplied the specimens. There are 2 figures, 1 table, and 1 Soviet-bloc reference. *JK*

SUBMITTED: June 29, 1960

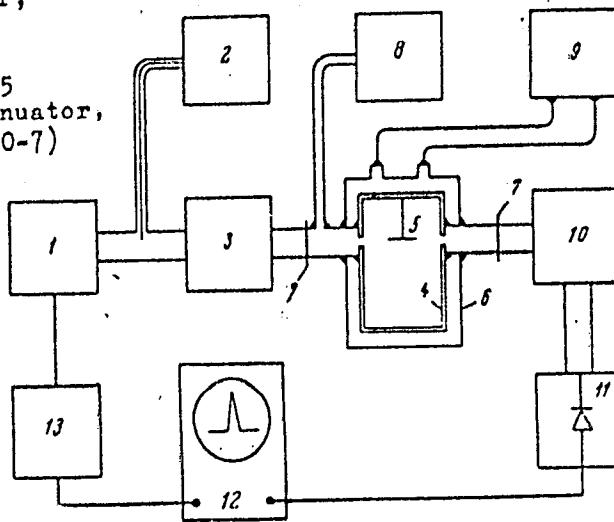
Card 3/6

20140

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B102/B201

Temperature dependence of ...

Legend to Fig. 1: 1) 43-И (43-I) generator of the 3-cm region, 2) echo resonator, 3) matcher, 4) resonator, 5) PbS layer, 6) metal housing, 7) mica window, 8) vacuum system, 9) ТС-15 (TS-15) thermostat, 10) 3-db attenuator, 11) crystal detector, 12) 30-7 (Е0-7) oscilloscope, 13) generator.



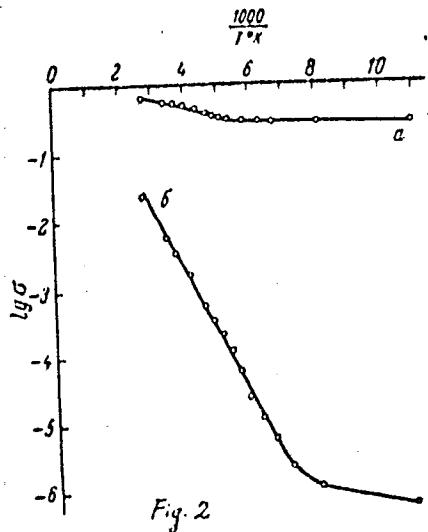
Card 4/6

Temperature dependence of ...

20110

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B102/B201

Fig. 2



Card 5/6

2014.0

8/18/61/003/002/010/080
B102/B201

Temperature dependence of ...

$T, {}^\circ\text{C}$	$\sigma, \text{OM}^{-1} \cdot \text{cm}^{-1}$	Q	$V = 70 \text{ V}$		\times
			$T, {}^\circ\text{C}$	$\sigma, \text{OM}^{-1} \cdot \text{cm}^{-1}$	
-183	0.26	10400	-183	$5.5 \cdot 10^{-7}$	
-150	0.26	10250	-150	$1.2 \cdot 10^{-6}$	
-125	0.27	9750	-135	$2.3 \cdot 10^{-6}$	
-113	0.28	9500	-123	$5.7 \cdot 10^{-6}$	
-100	0.29	9300	-113	$1.2 \cdot 10^{-5}$	
-86	0.3	9100	-105	$2.3 \cdot 10^{-5}$	
-78	0.32	8700	-96	$5.7 \cdot 10^{-5}$	
-70	0.34	8500	-88	$1.2 \cdot 10^{-4}$	
-60	0.39	7850	-80	$2 \cdot 10^{-4}$	
-46	0.44	7300	-59	$5.7 \cdot 10^{-4}$	
-39	0.47	7000	-33	$1.5 \cdot 10^{-3}$	
-25	0.5	6600	-11	$2.6 \cdot 10^{-3}$	
0	0.52	6350	0	$3.3 \cdot 10^{-3}$	
+20	0.54	6250	+20	$5.5 \cdot 10^{-3}$	

Card 6/6

94160 (1137, 1147)
26.2421

22038

S/181/61/003/004/004/050
B102/B214

AUTHORS: Berezhnaya, I. A. and Kurbatov, L. N.

TITLE: Investigation of the surface of lead sulfide photoresistors
by adsorption methods

PERIODICAL: Fizika tverdogo tela, v. 3, no. 4, 1961, 1038-1043

TEXT: The object of the authors was to compare the specific surface of PbS layers with good photoelectric sensitivity with those prepared under conditions deviating from the optimum. Up to now, the surface structure of such layers had been investigated mostly by purely physical methods (electron-microscopic or electron diffraction studies) except the studies by Harada (J. Chem. Phys. 24, 477, 1956) who worked with an adsorption method. Adsorption methods permit the investigation of the whole surface and the structure of the pores, i.e., their total volume and their distribution relative to the diameters. In the first case, the theory of poly-molecular adsorption developed by Brunauer, Emmet, and Teller (BET theory) can be applied, and in the second case the theory of capillary condensation based on the theory of Thomson. The BET theory is applicable in the range

X

Card 1/8

22038

S/181/61/003/004/004/030
B102/B214 X

Investigation of the...

0.05-0.4 of the relative vapor pressure P/P_0 , and the capillary-condensation theory in the range near the saturation-vapor pressure. In the region of polymolecular adsorption, xenon was used as an adsorbent, and in the region of capillary condensation, water vapor. In the calculation of the absolute surface area it was assumed that an area of 1200 cm^2 corresponds to one micromole of adsorbed xenon. The investigations of the pore structure were made with water vapor by a device suggested by D.P. Dobychin and A. K. Pogodayev. Three groups of photosensitive lead-sulfide layers were investigated: 1) "physical" layers obtained by vacuum evaporation of PbS and activation in air at elevated temperature; 2) "chemical" layers obtained by precipitation from a solution and showing high sensitivity at room temperature; and 3) physical "vacuum" photoresistors. The effect of the conditions of preparation on the size and structure of the surface was investigated for samples of the first group. The samples were obtained at different rates of evaporation and different temperatures of the base, but the activation was done in the same way. Fig. 1 shows the results referred to 1 g layer. It is seen that at high rates of evaporation the surface develops well but the layer shows no photosensitivity. The photosensitive PbS layers investigated were characterized by a specific surface of $1 \text{ m}^2/\text{g}$.

Card 2/8

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B102/B214

Investigation of the...

The specific surface area of vacuum photoelements was about $2.5 \text{ m}^2/\text{g}$, and that of chemical layers was $7 \text{ m}^2/\text{g}$. Fig. 3 shows the adsorption and desorption isotherms of water vapor as measured on a sample of the first group. The initial points of the curves are related to polymolecular sorption. However, the steep rise of adsorption at 70-80 % humidity and the existence of a hysteresis indicate that the sorption is mainly a capillary condensation. The hysteresis effect becomes weaker if the layer is heated to 100°C in vacuo. To study this more accurately, further experiments were made (see Figs. 5, 6). To obtain isotherms on the strength of the theory of capillary condensation, the structural curves were calculated from Thomson's equation (Fig. 8). The pore radii varied between 10 and 1000 \AA , the most probable diameter being $200-300 \text{ \AA}$. The authors thank S. P. Tibilov for his interest in the work, and M. S. Davydov, I. G. Kopilevich, M. S. Gromozov, and Ye. V. Prokof'yev for making available the samples. There are 6 figures and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S. I. Vavilova Leningrad (State Optical Institute imeni S. I. Vavilov, Leningrad)

Card 3/8

33643

24.3500 (also 1137, 1138)
9.4177 (also 1051)S/051/62/012/001/011/020
E032/E414

AUTHORS: Galkin, L.N., Kurbatov, L.N.

TITLE: The effect of oxygen on the photoluminescence of lead sulphide films

PERTIODICAL: Optika i spektroskopiya, v.12, no.1, 1962, 95-98

TEXT: It is pointed out that although there is extensive published literature on the electrical and photoelectric properties of lead sulphide, the optical properties of these films have not been investigated to the same extent. In particular, there has been no work on the effect of sorption of oxygen on the photoluminescence of lead sulphide films, which is claimed to have been discovered by the first of the present authors (Ref.1: DAN SSSR, v.92, 1953, 529; Izv. AN SSSR, ser. fiz., v.21, 1957, 680). The aim of the present work was to investigate changes in the conductivity, photoconductivity and photoluminescence during the absorption of oxygen at room temperature. Vacuum lead-sulphide photoresistors prepared by Ye.V.Prokof'yev in accordance with the method of I.G.Kopilevich were investigated. The resistance was determined by a dc method and the photoeffects were measured

Card 1/2

33643

The effect of oxygen ...

S/051/62/012/001/011/020
E032/E414

"in the usual way" in modulated light and with a germanium filter. The luminescence was excited by a mercury lamp. The emission of the specimen was examined through crossed filters and was measured with a cooled lead sulphide photoresistor. Fig.1 shows a typical result obtained on first contact with oxygen. The resistance of the film is plotted along the horizontal axis on a logarithmic scale. The points refer to different times of contact with oxygen. Displacement along the horizontal axis to the right corresponds to an increase in the amount of sorbed oxygen and the displacement of the Fermi level towards the valence band. The values of $\Delta R/R^2$ which are proportional to the photocurrent ΔI_{ph} and the intensity of the luminescence I_{ph} are plotted along the vertical axis (in relative units). It is clear from this figure that chemisorption of oxygen gives rise to a change in all the three quantities, namely the resistance, the photocurrent and the luminescence. The salient points are: the quantum yield is small and the effect of oxygen on the luminescence is very much smaller than on the photoconductivity or conductivity. These results are interpreted on the basis of a model which takes into

Card 2/A 3

The effect of oxygen ...

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E032/E414

account the effect of capture of minority carriers by traps of non-recombinational type during the lifetime of a majority carrier. It is assumed that adsorbed oxygen molecules play the part of these traps. From this point of view, the effect of oxygen absorption on the conductivity and photoconductivity is a primary result of absorption. The effect on the luminescence is an indirect result associated with the redistribution of the population of recombinational levels. There are 3 English and 4 references: 2 Soviet-blue, 1 Russian translation from non-Soviet publication and 1 non-Soviet-bloc. The reference to an English language publication reads as follows:
Ref.3: H.T.Minden. J. Chem. Phys., v.25, 1956; J.C.Slater. Phys. Rev., v.103, 1956, 1631.

SUBMITTED: January 14, 1961

Card 310 3

L 2327-66 EWA(k)/FBD/EWT(1)/EEC(k)-2/T/EWP(k)/EWA(m)-2/EWA(h) SCTB/IJP(c) WG
ACCESSION NR: AP5023362 UR/0020/65/164/001/0078/0079 64
AUTHOR: Zargar'yants, M. N.⁴⁴; Kiselev, A. A.⁴⁴; Kropotova, O. D.⁴⁴; B
Kurbatova, L. N.⁴⁴; Lyustrov, Yu. H.⁴⁴; Sigriyanskiy, V. V.⁴⁴; Taubkin, I. I.⁴⁴
Shestopalova, I. P.⁴⁴

TITLE: A continuous GaAs injection laser cooled by a flow of gaseous helium

SOURCE: AN SSSR. Doklady, v. 164, no. 1, 1965, 78-79

TOPIC TAGS: laser, injection laser, gallium arsenide, gallium arsenide laser, laser pumping

ABSTRACT: A continuously operating GaAs junction laser cooled by a flow of helium vapor is described. A GaAs laser was mounted on a triangular base. The p-n junction was formed by vapor diffusion of zinc into a wafer of GaAs doped with Te oriented in the (111) plane. The junction area was 0.34 x 0.4 mm. The cavity was formed by cleaving. The experimental device used to obtain continuous emission is shown in Fig. 1 of the enclosure. The major element in the device was a cryostat consisting of a double-wall silvered glass tube with

Card 1/3

L 2327-66
ACCESSION NR: AP5023362

the air pumped out from the space between the walls. One end of the tube and a heating element were lowered into the helium dewar. The diode at the other end of the tube was cooled by the flow of the helium gas. The advantage of the cooling system was that the diode's thermal regime depended primarily on the thermal characteristics of the helium gas and on the GaAs. When the laser was placed in the liquid helium and operated in the pulsed regime at a repetition rate of 50 pulses per second and at a pulse duration of 7 usec, the threshold current density was 1300 amp/cm². Under the same conditions the threshold current density of the laser cooled to ~30K by a flow of helium gas was 230 amp/cm². The laser was also operated continuously at temperatures between 25 and 35K. At ~30K the threshold current density for continuous operation was 360 amp/cm². (The output power was not given for any of the operating regimes). Orig. [CS]
art. has: 1 formula and 1 figure.

ASSOCIATION: none

SUBMITTED: 12Feb65

NO REF Sov: 000
Card 2/3

ENCL: 01

OTHER: 004

SUB CODE: EC

ATD PRESS: 4107

L 2327-66
ACCESSION NR: AP5023362

ENCLOSURE: 01

0

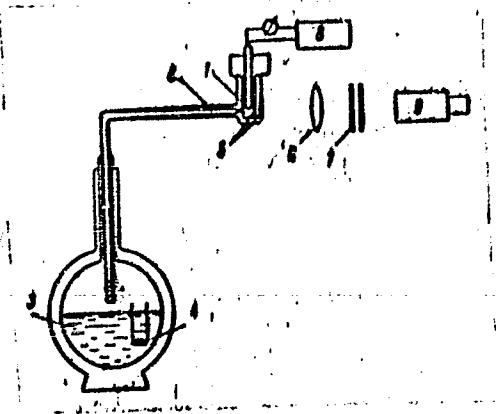


Fig. 1. The experimental setup for continuous operation of the GaAs laser

1 - GaAs diode; 2 - cryostat;
3 - liquid helium; 4 - heating
element; 5 - windows; 6 - lens;
7 - Fabry-Perot interferometer;
8 - battery; 9 - image converter.

Card 3/3 *ach*

L 5217-66 EWT(n)/JWP(t)/SWP(b) IJP(c) JD

ACC NR: AP5026403

SOURCE CODE: UR/0386/65/002/006/0262/0266

AUTHOR: Kurbatov, L. N.; Khalilov, P. A.; Susov, Ye. V.; Kharekhori, F. F.

ORG: none

TITLE: The influence of superhigh-frequency radiations on the electrical conductivity of p-type indium antimonideSOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu.
Prilozheniya, v. 2, no. 6, 1965, 262-266

TOPIC TAGS: radiation effect, electrical conductivity, indium antimonide, field effect

ABSTRACT: The reduction of d-c electrical conductivity caused by super-high frequency irradiation of a density of $P = 10^{-6}$ – 10^{-7} w-mm $^{-2}$ in p-type single crystalline indium antimonide has been investigated. The sample had a Hall carrier density of 7×10^{12} to 4×10^{14} cm $^{-3}$, a Hall mobility of 2×10^3 – 1×10^4 cm 2 /volt $^{-1}$. sec $^{-1}$, and a specific resistance of 4–100 ohm-cm in the range of wavelengths $\lambda = 2$ –30 mm, at temperatures of 77–150K. The volt-ampere characteristic is a straight line, the slope of which does not depend on the current's direction. The curves of the temperature dependence of the response indicate that the upper limit of the effect (130–140K) coincides with the transition region of the semiconductor from hole to electron conductivity. The effect is apparently neither bolometric nor photovoltaic, but may be produced by

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1. 5247-66

ACC NR: AP5026403

the direct influence of the super-high frequency field on the conductivity of the sample. Orig. art. has: 3 figures.

(ZL)

SUB CODE: 88,645 SUBM DATE: 12Jul65/ ORIG REF: 003/ OTH REF: 002/ ATD PRESS: 413/

BC

Card 2/2

ACC NR: AP5028275 46/MR/AT SOURCE CODE: UR/0020/65/165/002/0303/0304

AUTHOR: Kurbatov, L. N.; Kobanov, A. N.; Sigriyaniskiy, V. V.; Mashchenko, V. Ye.;
Mochalkin, N. N.; Sharin, A. I.; Soroko-Novitskiy, N. V.

ORG: none

TITLE: Generation of coherent radiation in GaAs samples excited by electrons

SOURCE: AN SSSR. Doklady, v. 165, no. 2, 1965, 303-304

TOPIC TAGS: laser, semiconductor laser, electron beam, gallium arsenide,
crystal lattice, electron

ABSTRACT: Laser action at 77K and at room temperature is reported in both n- and p-type GaAs excited with a beam of electrons. The Fabry-Perot cavity was prepared by cleaving in the (110) plane. The resonator mirror surfaces were separated by a distance of 50-60 μ . An electron beam device supplied electrons with energies up to 60 kev. The repetition rate and the pulse duration were 50-200 pulses per second and 9×10^{-8} sec, respectively. The maximum beam current at a beam diameter of 60-70 μ was 17 mamp. The electron beam was normal to the polished surface of the sample. The light was emitted from the faces normal to the polished faces. The threshold current densities were different for different samples and varied between 70 and 150 amp/cm². Since the effective mass of the electron and the width of the forbidden gap in GaAs are larger than in InSb and InAs (two of the other semiconductor lasers) and the lifetime of the electrons is very short, population inversion in

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UDC: 537.311.33

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ACC NR: AP5028275

GaAs should occur at a temperature of the electron gas equal to the Debye temperature ($\theta_D = 410K$) and not the lattice temperature. Therefore, in the range of lattice temperatures between 77-300K the threshold current should depend weakly on the temperature. The weak temperature dependence of the threshold current for laser action in GaAs was confirmed experimentally. Orig. art. has: 2 figures. [CS]

SUB CODE: 20 / SUBM DATE: 14Jan65/ ORIG REF: 003/ OTH REF: 004/ ATD PRESS:

4161

Card 2/2

KURBANOV, L. V., (Sverdlovsk), ZAHAROVICH, V. F., and SKROBY, G. V.

"A Contribution to the Faraday and Kerr Effects for the Radio Frequency," paper presented at the International Conference on Physics of Magnetic Phenomena, Sverdlovsk, USSR, 23-31 May 1956

SUBJECT: USSR/Physics of Magnetic Phenomena

48-6-11/23

AUTHORS: Skrotskiy, G.V. and Kurbatov, L.V.

TITLE: Thermodynamical Theory of Relaxation and Resonance Phenomena
in Two-Spin Systems (Termodynamicheskaya teoriya relaksatsion-
nykh i rezonansnykh yavleniy v dvukhspinovykh sistemakh)PERIODICAL: Izvestiya Akademii Nauk SSR, Seriya Fizicheskaya, 1957, Vol 21,
#6, pp 833-843 (USSR)ABSTRACT: Substances with pure spin magnetism are considered. They can
be represented as a combination of two spin-systems with dif-
ferent partial magnetizations and different gyromagnetic factors.

It is assumed that the spin-systems giving rise to magnetic pro-
perties of the substance and the lattice are quasi-independent.
In this case, the state of a magnetic substance can be charac-
terized by 3 temperatures: lattice temperature, T_0 , which is
assumed to be constant, and temperatures of spin-systems, T_1 and
 T_2 . The kinetics of the processes proceeding in a magnetic ma-
terial is determined by the relaxation times within each of the
spin-systems, τ_{11} and τ_{22} , the relaxation times between each
of the systems and the lattice, τ_{10} and τ_{20} , and the relaxation

Card 1/3

48-6-11/23

TITLE: Thermodynamical Theory of Relaxation and Resonance Phenomena in Two-Spin Systems (Termodynamicheskaya teoriya relaksatsionnykh i rezonansnykh yavleniy v dvukhspinovykh sistemakh)

time between the spin-systems T .

The external homogeneous magnetic field, in which the magnetic material is placed, is supposed to consist of two components: a constant field H_0 and a weak periodic variable field h , which can be differently oriented.

The author applies the thermodynamical method developed by Shaposhnikov (1) and derives differential equations describing the behavior of any magnetic material in an external field. The constants contained in these equations can be expressed through relaxation times characteristic for those sub-systems of which the magnetic material in question consists. Then the differential equations established are solved, partly rigorously and partly approximately, and solutions obtained are compared with the formulas found by other investigators. In particular, the equations found differ somewhat from those by Bloch which are used in the theory of nuclear induction.

Card 2/3

There are 3 references, 2 of which are Russian.

48-6-11/23

TITLE: Thermodynamical Theory of Relaxation and Resonance Phenomena
in Two-Spin Systems (Termodinamicheskaya teoriya relaksatsion-
nykh i rezonansnykh yavleniy v dvukhspinovykh sistemakh)

ASSOCIATION: Ural Polytechnical Institute and Sverdlovsk Medical Institute

PRESENTED BY:

SUBMITTED: No date indicated

AVAILABLE: At the Library of Congress.

Card 3/3

AUTHORS: Skrotskiy, G. V., Kurbatov, L. V. SOV/56-35-1-29/59

TITLE: On the Theory of the Anisotropy of the Width of the Lines of Ferromagnetic Resonance Absorption (K teorii anizotropii shiriny liniyi ferromagnitnogo rezonansnogo pogloshcheniya)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958,
Vol. 35, Nr 1, pp. 216-220 (USSR)

ABSTRACT: In continuation of some of their earlier papers (Refs 1,2), the authors base their determination of the width of line of r.f. resonance absorption upon the previously derived equations $\vec{M} = \vec{\gamma} \left[\frac{\vec{M} \vec{H}}{MH} \right] - \frac{1}{\tau} (\vec{M} - \chi_0 \vec{H})$ if only spin-spin relaxation is taken into account. χ_0 denotes equilibrium susceptibility and $M = \chi_0 H_M$. For weak r.f. fields ($|\vec{h}| \ll H_M$) this equation leads to the Lorentz shape of the absorption curve. For ferromagnetics χ_0 is, however, not constant; it holds that $\chi_0 = M^2 / (\vec{M} \vec{H})$ and $\vec{M} = \vec{\gamma} \left[\frac{\vec{M} \vec{H}}{MH} \right] - \lambda M^{-2} \left[\vec{M} \left[\frac{\vec{M} \vec{H}}{MH} \right] \right]$ where $\lambda = \chi_0 / \tau$.

Card 1/3

On the Theory of the Anisotropy of the Width of
the Lines of Ferromagnetic Resonance Absorption

SOV/56-35-1-29/59

This is the equation by Landau and Lifshits, with the aid of which the dependence of the width of the absorption lines on the field is derived. For $\alpha = \lambda / \gamma M$ one obtains for the connection of spin-spin relaxation time τ with

$\alpha : \frac{1}{\tau} = \gamma M^{-2} (MH) \alpha; ((MH) = MH)$ and for $\lambda : \lambda = M^2 / \tau (MH)$
For manganese ferrite with slight zinc impurities (investigated in paper (Ref 1)) at 9100 megacycles and an anisotropy K/M at room temperature of (-71 ± 1) Oe) as well as for manganese ferrite $Mn_{0.98} Fe_{1.86} O_4$ (Ref 7, 9300 megacycles (-79 ± 3) Oe)
the values of H_{res} , ΔH , $|\alpha|$ and $1/\tau$ are in the following compiled in a table in accordance with the derived formulae.
 $|\alpha|$ is of the order 10^{-3} and $1/\tau: 10^8$ sec $^{-1}$.
There are 1 table and 7 references, 2 of which are Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute)

Card 2/3

9.6/30

67895
S/126/60/010/003/001/009/XX
E201/E391AUTHORS: Skrotskiy, G.V. and Kurbatov, L.V.TITLE: The Effect of Magnetic Long-range Order Fluctuations
on the Temperature Dependence of the Width of a
Ferromagnetic Resonance Absorption LinePERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol. 10,
No. 3, pp. 335 - 340TEXT: A simple statistical-mechanics calculation is given
which leads to an explicit expression for broadening of a
ferromagnetic resonance absorption line due to magnetisation
fluctuations, without any necessity for knowledge of the sample
microstructure. It is shown that for any one sample:

$$\Delta H_f \left(G'(a_s) - \frac{C}{T} \right)^{1/2} = \text{const.} \quad (14)$$

where $G'(a_s) = 1/(1 - a_s^2)$, a_s is the spontaneous magnetisation in relative units,Card 1/3⁽¹⁾ is the Curie temperature.

67895

S/126/60/010/003/001/009/XX
E201/E391

The Effect of Magnetic Long-range Order Fluctuations on the
Temperature Dependence of the Width of a Ferromagnetic
Resonance Absorption Line

T is the absolute temperature of the sample,

ΔH_f is the line broadening.

A table on p. 339 gives the values of the quantities occurring in Eq. (14) for a monocrystal of yttrium ferrite garnet (Curie temperature of 560 $^{\circ}$ K); Eq. (14) can be seen to be obeyed within the temperature range 494-556.5 $^{\circ}$ K. The authors discuss also ferromagnetic resonance line broadening in polycrystalline samples, when anisotropy broadening and broadening due to air pores occur in addition to broadening due to magnetisation fluctuations. The paper ends with a brief discussion of ferrite garnets with a compensation point; this point is a temperature at which spontaneous magnetisation of sublattices cancel out each other and the

Card 2/3

87895

S/126/60/010/003/001/009/XX
E201/E391

The Effect of Magnetic Long-range Order Fluctuations on the Temperature Dependence of the Width of a Ferromagnetic Resonance Absorption Line

resonance line broadens quite strongly. Acknowledgments are made to A.G. Gurevich and I.Ye. Gubler for communicating their results before publication.

There are 1 table and 22 references: 5 Soviet and 17 non-Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institute imeni S.M. Kirova (Ural Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: May 10, 1960

W

Card 3/3

24.7900

S/058/62/000/003/077/092
A061/A101

AUTHOR: Kurbatov, L. V.

TITLE: Theory of ferromagnetic resonance in thin films

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1962, 75, abstract 3E553
("Tr. Ural'skogo politekhn. in-ta", 1961, sb. III, 32 - 37)

TEXT: Expressions were obtained for the empirical description of the relationship between ferromagnetic resonance frequency and the absorption line width under conditions of uniform magnetization precession in a thin ferromagnetic film possessing uniaxial magnetic anisotropy. The calculation does not take into account the anisotropy of internal film stresses nor the spin-wave effects. The absorption line width in the uniaxial ferromagnetic film was found to depend essentially on the orientation of the magnetization field in the film plane, and to pass through a maximum when the external field was oriented along the axis of slight magnetization.

[Abstracter's note: Complete translation]

Card 1/1

24.7.100

S/058/62/009/003/076/092
A061/A101

AUTHOR: Kurbatov, L. V.

TITLE: Effect of crystallographic magnetic anisotropy on the ferromagnetic resonance condition in single crystals

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1962, 75, abstract 35552
("Tr. Ural'skogo politekhn. in-ta", 1961, sb. III, 38 - 41)

TEXT: The approximate analytic dependence of ferromagnetic resonance frequency on the direction of the magnetization field applied and its magnitude was calculated theoretically. The problem was solved in the limit case, where the energy of crystallographic magnetic anisotropy was assumed to be low compared with the magnetic energy of the crystal in the external field. For greater simplicity, the author also neglected the sample shape and stress anisotropy, as well as the effect of damping on the resonant frequency. The calculation is made for uniaxial and cubic ferromagnetic crystals.

[Abstracter's note: Complete translation]

Card 1/1

KURBATOV, L. V.

Dissertation defended for the degree of Candidate of Physicomathematical Sciences at the Institute of Metal Physics in 1962:

"Effect of Magnetic Anisotropy on Ferromagnetic Resonance."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

KURBATOV, M., kapitan dal'nego plavaniya; MURAV'YEV, Ye.

The passage as the basis for a ship's planning. Mor. flot.
24 no.11:11 N '64. (MIRA 18:8)

1. Obshchestvennyy kapitan-nastavnik Severnogo parokhodstva
(for Kurbatov). 2. Nachal'nik planovogo otdela Severnogo
parokhodstva (for Murav'yev).

KURBANOV, M.

Boarding out Soviet ships. Mar. flot 25 no.9:9-10 S '65. (NIRA 18:9)

1. Obshchestvennyy kapitan-nastavnik Severnogo parokhodstva.

KURBATOV, M.A.

Experimental use of the PK20S-1 apparatus on the lumber carrier
"Pavlin Vinogradov". Biul. tekhn.-ekon. inform. Tekh. upr. Min.
mor. flota 7 no.3:26-32 '62. (MIRA 16:5)

1. Kapitan lesovoza "Pavlin Vinogradov".
(Merchant ships--Cargo)
(Trim (of ships)--Measurement)

SOV/137-59-7-15728

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 7, p 220 (USSR)

AUTHORS: Shul'te, Yu.A., Kurbatov, M.I., Tkachenko, A.S., and Slonim, D.M.

TITLE: Ways to Improve High-Manganese "013L" Steel

PERIODICAL: Tekhn.-ekon. byul. Sovnarkhoz Zaporozhsk. ekon. adm. r-na, 1958, Nr 7, pp 24 - 29

ABSTRACT: Investigations were carried out into the effect of modification of "013L" steel by Fe-Ti addition causing the development of Ti-nitrides in steel which limit the grain growth. It was stated that Fe-Ti additions increased 1.5 times the durability of crusher hammers. Improvement of mechanical properties of "013L" steel is characterized by the following data: σ_b from 55.6 to 78.4 kg/mm²; σ_o from 39.0 to 42.0 kg/mm²; δ from 19.8 to 28.8%; ψ from 17.5 to 28.9%; H_B from 206 to 218. For "013L" steel Al is not a modifier but only a de-oxidizer.

T.P.

✓

Card 1/1

KURBATOV, M. I. and SHUL'TE, Yu. A.

Vliyaniye tekhnologicheskikh faktorov plavki na svoystva vysokomargantsevistoy stali.

report submitted for the 5th Physical Chemical Conference on Steel Production,
30 Jun 1959, Moscow.

SHUL'TE, Yu.A.; KURBATOV, M.I.

Kind of nonmetallic inclusions in high manganese steel and
their characteristics. Izv.vys.ucheb.zav.; chern.met. no.3:
159-164 '60. (MIRA 13:4)

1. Zaporozhskiy mashinostroitel'nyy institut.
(Manganese steel) (Nonmetallic materials)

KURSKAYA, N. I.

115

PHASE I BOOK EXPLOITATION SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th,
Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii
(Physicochemical Bases of Steel Making; Transactions of the
Fifth Conference on the Physicochemical Bases of Steelmaking)
Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted.
3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni
A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy
of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveig.
Tech. Ed.: V. V. Mikhaylova.

Card 1/16

115

Physicochemical Bases of (Cont.)

SOV/5411

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

Card 2/16

Physicochemical Bases of (Cont.)	SOV/5411
Arc Furnace Induced by Blowing Oxygen Into the Metal	149
Shul'te, Yu. A., and M. I. Kurbatov. The Effect of Manufacturing Parameters on the Properties of High-Manganese Steel	159
Iodkovskiy, S. A., and N. N. Sashchikhin. New Method of Making Austenitic Steels With a Given Quantity of Ferrite	167
Suchil'nikov, S. I. Extracting Valuable [Ferroalloy] Elements During The Process of Their Production	178
Berezhiani, V. M., and V. B. Baratashvili. Investigating the Nitrous Manganese Production Processes	184
Zamoruyev, V. M. On the Distribution of Titanium Between the Metal and Slag	189

Card 8/16

SHUL'TE, Yu.A.; SHITIKOV, V.S.; KURBATOV, M.I.

Economizing ferromanganese in making G13L steel in tractor-building plants. Izv. vys. ucheb. zav.; chern. met. 4 no.7:67-71 '61. (MIRA 74:8)

1. Zaporozhskiy mashinostroitel'nyy institut.
(Steel-Metallurgy)
(Ferromanganese)

SHUL'TE, Yu.A.; SHITIKOV, V.S.; KURBATOV, M.I.

Reducing the amount of ferromanganese used in making G13L steel.
Lit. proizv. no.6:40-41 Je '61. (MIRA 14:6)
(Ferromanganese)
(Manganese steel--Electrometallurgy)

SHUL'TE, Yu.A.; KURBATOV, M.I.; RIDNYY, A.A.; KOSTINISKIY, D.S.;
KUGEL', R.V.; USHAKOV, A.D.

Manganese content in high manganese steel for track shoes. Lit.
proizv. no.11:27-30 N '61. (MRA 14:10)
(Manganese steel--Analysis) (Steel castings)

SHUL'TE, Yu.A., doktor tekhn.nauk, prof.; KURBATOV, M.I., inzh.;
GLADKIY, S.I., inzh.

Heat treatment of track blocks made of G13L steel. Metalloved.
i term.cbr.met. no.12:25-27 D '61. (MIRA 14:12)

1. Zaporozhskiy mashinostroitel'nyy institut.
(Manganese steel--Heat treatment)
(Tractors--Design and construction)

S/128/62/000/002/006/007
A004/A127

AUTHOR: Kurbatov, M.I.

TITLE: Physical fundamentals of casting in a rotating magnetic field

PERIODICAL: Liteynye proizvodstvo, no. 2, 1962, 30 - 32

TEXT: The author points out that the most simple and effective method of rotating metal by electromagnetic forces is the application of a magnetic field. The stator of a multi-phase electric motor can be used to produce the rotating magnetic field. The mold with the liquid metal having been placed inside the stator, currents are induced in the metal which are interacting with the magnetic field and thus produce forces which are acting in the direction of its rotation. The liquid metal is rapidly revolving at a speed which approaches the speed of the magnetic field, and only at the mold boundary or in the layer of the solidifying metal a layer with a sharp speed drop is found. The thin film of liquid metal adjacent to the solidifying layer can be assumed as immobile; consequently, the forces acting in this film possess the maximum magnitude. The author presents a number of formulae and their derivations to calculate the induced electromotive force, the current density, the amplitudes of the tangential and radial components, the thickness of the boundary layer and the forces acting on a cylindrical sur-

Carri 1/2

Physical fundamentals.....

S/128/62/000/002/006-007
A004/A127

face. He points out that the mold material thickness should be as thin as possible. Moreover, formulae are given for calculating the power losses due to friction during the uniform cooling from all sides and at a great ductility of the solid metal at high temperature. For the calculation of the stator coils it is possible to use the theory of electric machines. It is stated that the suggested method ensures an intensive stirring of the liquid metal and a high pressure in the metal. The rotation speed of the liquid metal and the pressure can be regulated, since it depends on the rotation frequency of the magnetic field, i.e., on the stator winding multiplicity factor and the current frequency. In the liquid metal layer which is adjacent to the solidifying ore alternating forces are acting whose magnitude and frequency are adjustable, since they depend on the rotation frequency of the magnetic field and on the field induction. These features have a favorable effect on the metal structure. The necessary intensified cooling makes it possible to accelerate solidification process and thus to increase the efficiency. There are 3 figures.

Card 2/2

KURBATOV, M.

Operation of steamships without stokers. Rech. transp. 21
no. 6:32-33 Je '62.
(MIRA 15:7)

1. Nachal'nik sluzhny sudovogo khozyaystva Kamskogo rechnogo
parokhodstva.
(Stokers, Mechanical)

SPERANSKIY, B.S., inzh.; SHUL'TE, Yu.A., doktor tekhn.nauk; KURBATOV,
M.I., inzh.

Effect of casting temperature on the structure of track shoes
made of high-manganese steel. Mashinostroenie no. 2:46-47
Mr-Ap '64.
(MIRA 17:5)

SHUL'TE, Yu.A.; GLADKIY, S.I.; BARYSHEVSKIY, L.M.; BERMUN, M.N.;
IUNEV, V.V.; SAFELKIN, A.I.; VOLCHOV, T.P.; SHEVCHUK, F.T.;
KURBATOV, M.I.

Heat treatment of medium-carbon steel castings. Lit. proizv.
no.4:9-10 Ap '64.
(MERA 18:7)

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APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000927620015-9"

PARASYUK, P.P., inzh.; KURBATOV, M.I., kand. tekhn. nauk

Casting the armor of cone crushers of G13Cr steel in metal
molds. Mashinostroenie no. 6250-51 N-D '64 (MIRA 1822)

SHUL'TE, Yu.A.; SHERSTYUK, A.A.; KURBATOV, M.I.

Effect of phosphorus on the cold brittleness of high manganese
steel. Lit.proizv. no.7:21-22 J1 '64.

(MIRA 18:4)

SHUL'YE, Yu.A., doktor tekhn.nauk; PARASYUK, P.F., inzh.; SHERSTYUK, A.A., inzh.; MIKHAYLOV, P.A., inzh.; KURBATOV, M.I., kand.tekhn.nauk; BERKUN, M.N., inzh.

Increasing the durability of high-manganese steel castings.
Machinostroenie no.4:57-58 Ju-Ag '65. (MIRA 18:8)

ACC NR: AP5023265

SOURCE CODE: UR/0128/65/000/008/0005/0006

AUTHOR: Kurbatov, M. I. (Candidate of technical sciences); Ridnyy, A. A. (Engineer);
Boriskin, I. Ye. (Engineer); Grenaderov, A. I. (Engineer)

ORG: none

TITLE: Effect of the chemical composition of high manganese steel on its wear
resistance

SOURCE: Liteynoye porizvodstvo, no. 8, 1965, 5-6

TOPIC TAG3: manganese steel, tractor, wear resistance, carbide / G10L high
manganese steel

ABSTRACT: Since the C and Mn content of regular G13L high-manganese steel fluctuates too broadly, a new type of high-manganese steel, G10L, with a narrower range of variation in the content of C and Mn (0.90-1.35% C, 9-11% Mn as well as \leq 0.10% P, \leq 1.2% Si, \leq 0.02% S, \leq 1.0% Cr, and \leq 0.5% Ni) has been developed. The reduction in Mn content to 9-11% and the corresponding reduction in C and P content result in a marked increase in the purity of track blocks with respect to residual carbides, virtual elimination of defects of the hot-crack type, and enhancement of wear resistance of the steel. Wear resistance of G13L and G10L steels specimens with different Mn and C contents, was determined by measuring the weight loss of track-block

Card 1/2

UDC: 669.15'74-194

ACC NR: AP5023265

lugs with the aid of a special device. Findings: as the Mn content decreases from 15.8% to 9.03, the wear resistance increases and the influence of C is feeble. As the P content increases the wear resistance somewhat increases; S content up to 1.2% has no effect on wear resistance. Further, as part of the experiment, T-75 tractors were assembled half with track blocks of P13L steel and half with track blocks of G10L steels and regularly operated under arduous field conditions. Subsequent examination showed that the wear resistance of track blocks of G10L steel is 16% higher than that of the track blocks of G13L steel. This indicates that the question of the optimal composition of the high-manganese steel used to fabricate track blocks must be re-examined. Orig. art. has: 5 figures, 2 tables.

SUB CODE: 02, 11, 13/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 001

* [No 1713JL [P13L] occurs in the original, probably G13L is meant.]

Card 2/2 10

L 23081-66 EWT(m)/EIA(d)/T/EHP(t) IJP(c) JD/JG
ACC NR: AP5029000 SOURCE CODE: UR/0128/65/000/009/0034/0035 95
44
B

AUTHOR: Kurbatov, M. I. (Candidate of technical sciences); Ridnyy, A. A. (Engineer);
Maksimenko, V. D. (Engineer); Shestyuk, A. A. (Engineer); Koshelev, V. I. (Engineer)

ORG: none

TITLE: Effect of the addition of small amounts of boron on the properties of G12L
manganese steel 4 21

SOURCE: Liteynoye proizvodstvo, no. 9, 1965, 34-35

TOPIC TAGS: boron, nonmetallic inclusion, manganese steel, tractor / G13L manganese
steel

ABSTRACT: The effect of the addition of 0.0036-0.0252% B on the structure and
mechanical, technological properties and operational qualities of cast crawler-tread
links of G13L manganese steel is investigated. Ferroboron was added to the bottom-
pour ladles (capacity 0.3 ton) directly prior to pouring into the molds. Boron
greatly changes the properties of cast steel -- B-free steel has a dendritic struc-
ture whereas B-containing steel has a stone-like finegrained structure. As a result
of metallographic examination and tensile and impact tests it is established that
the contamination of the austenitic structure of the steel by residual carbides
increases when the residual B content exceeds 0.0108%. Boron nitrides, being crystal-
27

Card 1/2

UDC: 669.15'74-194:669.781

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ACC NR: AP5029000

lization nuclei, contribute to a more finegrained structure of the castings but if the B content is too high, owing to the decrease in its solubility, B, as a surface-active element, is displaced toward the grain boundaries where, evidently, its oxides, carbides and borides also are located. The mechanical properties of B-treated steel: σ_b , δ and ψ , slightly increase if B content is not more than 0.0072% but sharply decrease if the B content exceeds this limit. These findings confirm that increasing the B content above the solubility limit of B in Fe leads to the formation of a large number of nonmetallic inclusions along grain boundaries and a sharp decrease in the mechanical properties of steel, as was besides also corroborated by the bending and wear resistance tests of crawler-tread links. Thus, in the shops of the tractor plants it is advisable to inoculate steel with B in order to obtain castings with a finegrained structure provided that the B content does not exceed 0.007%. Orig. art. has: 2 tables, 1 figure.

SUB CODE: 11, 13, 20/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

Card 2/2 ULR

CH

KURBATOV, M.M.

Reaction of α,β -unsaturated aldehydes with aromatic amines. III. Diphenylaminoacrolein. B. I. Ardashev and M. M. Kurbatov (Molotov State Univ., Rostov). *Zhur. Obshch. Khim.* (J. Gen. Chem.) **20**, 103-8 (1950).

cf. C. I. 41, 122d. Ph_2NH (90 g.) and 25 ml. acrolein in a tightly closed flask kept 8-10 hrs. in a boiling water bath, then chilled 4 hrs., gave after treatment with hot EtOH , 33.7%, "diphenylaminoacrolein," probably having the structure $\text{Ph}_2\text{NCH}(\text{CH}_2\text{CH}=\text{CH}_2)\text{Ph}_2$, m. 145° (from EtOH). On distn. *in vacuo* the product decomps., yielding Ph_2NH and some acrolein, and much resinous matter. The product is distinctly different from that described by Leeds [Ber. **15**, 1158 (1882)]. Its formation is postulated to proceed through the enolized form of the monomol addn. product to the C=C bond. When the condensation was done at 40-50° only 5-10% yields of products were obtained and these, m. 100-104°, being distinctly different from the above described material. G. M. K.

4 KURBATOV, M. M.

10

The reactions of α,β -unsaturated aldehydes with aromatic amines. III. Diphenylaminacrolein. B. I. Arduchev and M. M. Kurbatov (V. M. Molotov State Univ., Rostov-on-Don). *J. Gen. Chem. U.S.S.R.* 20, 497-9 (1950) (Engl. translation). --See C.A. 44, 74001b, R.M.S.

1957

KURBATOV, M.M.

Survey and competition of public designing offices in the
Leningrad Economic Council. Opyt rab. po tekhn. inform. i prop.
no.1:44-47 '63. (MIRA 16:12)

1. Nachal'nik otdela TSentral'nogo byuro tekhnicheskoy informatsii
Leningradskogo soveta narodnogo khozyaystva.